

**UNITED STATES DEPARTMENT OF THE INTERIOR**

**FISH AND WILDLIFE SERVICE**

**ARNIE J. SUOMELA, COMMISSIONER**



**RANKIN RAPIDS RESERVOIR**  
**MAINE**

**A DETAILED REPORT ON FISH AND WILDLIFE RESOURCES**



REGION 3

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES & WILDLIFE  
OFFICE OF REGIONAL DIRECTOR  
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PENNSYLVANIA  
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DELAWARE  
WEST VIRGINIA

IN REPLY REFER TO:

General S. D. Sturgis, Jr.  
Chairman, American Section  
Passamaquoddy Engineers Board  
Federal Trade Building  
Washington 25, D. C.

October 1, 1959

Dear Sir:

This letter, constitutes the preliminary report of this Bureau on the plan for Rankin Rapids Dam and Reservoir project on the St. John River, Aroostook County, Maine. It is based upon substantiating data prepared in cooperation with the Maine Department of Inland Fisheries and Game and the report, and specifically the recommendations which follow, have been endorsed by that Department as indicated in the July 23, 1959 letter from Commissioner Roland H. Cobb, a copy of which is appended.

We have explored, insofar as possible, the apparent effects of the proposed project on the fish and wildlife resources of the project area. As a result of our investigations we have found, (1) that the proposed project would cause major losses to fish and wildlife resources, (2) that the effects of the project on fish and wildlife resources would extend far beyond the limits of the project areas, and (3) that the proposed project would destroy existing and potential values of the Allagash River which cannot be replaced by any other site in the eastern United States.

Alternate sites for the construction of dams and reservoirs on the upper St. John River have been proposed to reduce damages to fish, wildlife, and recreational resources which would occur if the Rankin Rapids Dam is constructed. These consist of a high dam and reservoir at Big Rapids and a low dam and reservoir at Lincoln School, both on the St. John River. These sites were considered in The Report of the New England-New York Inter-Agency Committee (NENYIAC), "The Resources of the New England-New York Region", Part two, Chapter III, "St. John River",

as alternate to Rankin Rapids and were favored by both recreational interests and fish and wildlife interests. Development of the alternate sites would still result in substantial fish and wildlife losses but their detrimental impact would be much less than in the case of the Rankin Rapids project. Specifically, selection of the alternate Big Rapids-Lincoln School sites would -

1. Permit development of the major part of the Allagash River for wilderness-type recreational use. Under the alternate plan only about six miles of the lower part of the river would be affected.

2. Maintain Allagash Falls as a natural barrier to the introduction of yellow perch and other undesirable species into the Allagash River drainage, thereby preventing deterioration of the trout fishery of the entire drainage.

3. Maintain 38 miles of a high-quality main-stem fishery on the Allagash River and inundate no significant lakes or ponds. Compared with Rankin Rapids Dam it would destroy an additional 10 miles of the St. John River stream fishery.

4. Prevent loss of 30 deer yards comprising about 9,000 acres. Construction of the Rankin Rapids Project would cause the loss of 64 deer yards encompassing about 22,000 acres while construction of the alternate sites would cause the loss of 34 yards comprising about 13,000 acres.

5. Cause serious fish and wildlife losses, in addition to those mentioned in item 4, but the total losses to fish and wildlife resources would be less than would occur from the Rankin Rapids project.

6. Provide adequate auxiliary power (according to verbal information received from the Corps of Engineers, May 15, 1958) to support the Passamaquoddy Tidal Power Project.

In view of the fact that the Allagash River and a large portion of its watershed, an irreplaceable wilderness-type recreational and fish and wildlife resource of outstanding value, would be destroyed by construction of the Rankin Rapids project, and in view of the fact that alternate sites are available for construction of dams and reservoirs which would cause fewer losses to the fish and wildlife resources, this Bureau recommends:

1. That maximum overall benefits, including those based upon fish and wildlife resources, be realized by utilizing the Big Rapids and Lincoln School dam sites rather than the Rankin Rapids dam site for construction of power generating facilities to provide capacity auxiliary to the Passamaquoddy Tidal Power Project.

2. That the preservation and enhancement of fish and wildlife resources be made a project purpose for either project plan which may be

authorized for construction.

3. That the Allagash River and adequate adjoining lands be maintained as an area for wilderness-type recreational use. The National Park Service in cooperation with State agencies, other interests and this Bureau is preparing recommendations for development of this area for consideration. A copy of a statement from the National Park Service, dated May 13, 1959, has been appended to the substantiating data.

4. Further detailed studies of fish and wildlife resources be conducted subsequent to authorization of either the Rankin Rapids project or the Big Rapids-Lincoln School alternate to more closely define and specify measures to provide the maximum possible development of fish and wildlife resources, and that reasonable modifications for preservation and propagation of fish and wildlife resources be made as may be agreed upon by the Director, Bureau of Sport Fisheries and Wildlife and the Chief of Engineers, U. S. Army.

The above recommendations constitute the basic position of this Bureau on the overall fish and wildlife aspects of the Rankin Rapids project together with consideration of the Big Rapids-Lincoln School alternate. During our studies, however, measures for lessening and compensating fish and wildlife losses were developed and given consideration. These measures are listed below. Further studies would be required to determine the feasibility of their detailed implementation. All measures listed are potentially applicable to either the Rankin Rapids project or the Big Rapids-Lincoln School alternate. In the case of the Big Rapids-Lincoln School alternate, these measures are capable of partially offsetting fish and wildlife losses. In the case of the Rankin Rapids project, the capacity of these measures to offset fish and wildlife losses is more limited due to the greater magnitude of the losses involved, although not so limited as to preclude detailed consideration of these measures in the event the project is authorized.

a. Establishment of a management framework for management of fish and wildlife resources at either project site. This could best be accomplished by development of a General Plan pursuant to Section 3 of the Fish and Wildlife Coordination Act, 49 Stat. 401, as amended; 16 U.S.C. et.seq.

b. Provision of public access. This would involve purchase at Federal cost of sufficient lands, adjacent to the boundary of either project site, to establish a number of separate access points. Some of these sites would be located at roadheads while others, including all smaller islands, would be developed as wilderness camping areas for hunters and fishermen. One site, located near either dam, would be developed as the main access point and would incorporate extensive facilities for parking, boat launching, and similar accommodations.



c. Purchase of additional land for wildlife management purposes. Acquisition of the large island, which will be formed just above the junctions of the Big Black River and the St. John River, would be requested. This island, encompassing about 11,000 acres, would be purchased at Federal cost and operated by the State as a Wildlife Management area. Additional land acquisition for wildlife management would be considered with particular reference to lands having actual or potential capacity as deer wintering areas.

d. Modification of land clearing plans. Modifications of land clearing plans would be required to preserve, insofar as possible, deer yarding areas remaining above maximum pool levels.

e. Construction of barrier dams. These structures would prevent undesirable fish species from invading waters supporting a cold-water fishery.

f. Provision for minimum flows as required to benefit downstream fisheries.

g. Provision for a fish hatchery and rearing facilities. Construction of a fish hatchery, or provisions of a site for a fish hatchery, may be found necessary for maximum yield from the reservoir fishery.

h. Management of tributary streams. Management of streams tributary to the reservoir will be necessary as part of the fisheries and wildlife management program for either project area. This program would entail clearing obstructions to fish passage, providing fishways, and providing water storage impoundments to control stream flows as and where necessary.

i. Subimpoundments for waterfowl within reservoir maximum flow line. These would involve construction of subimpoundments on suitable arms of the reservoir within which water levels could be manipulated for maximum development of waterfowl habitat, independent of water level fluctuations of the main reservoir.

j. Control of reservoir pool elevations and provisions of spawning beds. Reasonable control of reservoir pool levels may be necessary at such times and in such manner as to encourage reproduction of desirable fish species and to inhibit reproduction of undesirable fish species. In addition, creation of spawning beds by the dumping of rock spoil at selected sites is a possibility.

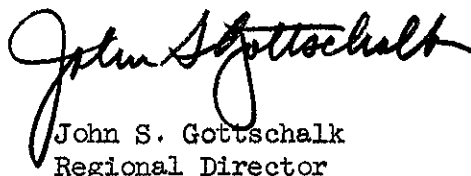
k. Control of release temperatures. Control of the temperature of water released through the dam could offer opportunities to improve downstream habitat conditions for fish life. Further investigations may

reveal a feasible method for providing such control.

We request that this report and the accompanying substantiating data be included in the report being prepared for submission to the International Joint Commission and that it be called to the attention of that group.

We appreciate your cooperation and interest in the development of the resources of that upper St. John River Basin for maximum possible multiple-purpose benefits.

Sincerely yours,



John S. Gottschalk  
Regional Director

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Y

DEPARTMENT OF  
INLAND FISHERIES AND GAME  
Roland H. Cobb, Commissioner  
George W. Bucknam, Deputy Commissioner  
AUGUSTA

July 23, 1959

Mr. Ralph A. Schmidt, Regional Supervisor  
Branch of River Basin Studies  
Bureau of Sport Fisheries and Wildlife  
Fish and Wildlife Service  
Department of Interior  
59 Temple Place  
Boston, Massachusetts

Dear Mr. Schmidt:

The Rankin Rapids Reservoir report represents the general thinking of our Department. We appreciate your consideration of our suggestions and your effort to integrate the ideas of both our agencies.

One point I cannot emphasize enough is that the present report is based on only preliminary studies for the most part. If the fish and game interests are to make detailed recommendations, they must have the facilities and time to do a more thorough study of the drainage involved.

Sincerely yours,

/s/ ROLAND H. COBB  
Commissioner

RCH: jbl

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

Arnie J. Suomela, Commissioner

SUBSTANTIATING DATA

for

A REPORT ON FISH AND WILDLIFE RESOURCES IN RELATION

TO THE

RANKIN RAPIDS DAM AND RESERVOIR

ST. JOHN RIVER, MAINE

Prepared in Cooperation with the Maine Department  
of Inland Fisheries and Game

September 1959

## PREFACE

The purpose of this report is to assess the effects of the proposed Rankin Rapids project on the fish and wildlife resources of the upper St. John River drainage. This report is primarily based on engineering data provided by the Corps of Engineers on June 27, 1958. The New England Division, Corps of Engineers, U. S. Army is preparing a survey report on this project which will be submitted to the International Passamaquoddy Engineering Board appointed by the International Joint Commission. Construction of the project has not been authorized.

The New England-New York Inter-Agency Committee (NENYIAC) report, "The Resources of the New England-New York Region", published in 1956 contained a brief Bureau report of this project. At that time consideration was given to a maximum reservoir elevation of 810<sup>1/</sup> which would have inundated about 47,000 acres. The maximum reservoir elevation currently proposed is 860 which would inundate about 93,000 acres. The increase in elevation does not invalidate the NENYIAC report.

Personnel of the Maine Department of Inland Fisheries and Game furnished valuable assistance in these investigations.

1/ Elevations in this report are in feet and refer to mean sea level datum.

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Map - Location Map of Rankin Rapids Dam Site

SUBSTANTIATING DATA  
For  
A Report on Fish and Wildlife Resources in Relation  
To The  
Rankin Rapids Dam and Reservoir  
St. John River, Maine

INTRODUCTION

1. Rankin Rapids Reservoir is proposed as a hydroelectric generating facility which would provide auxiliary power for the Passamaquoddy Tidal Power Project now under study.

2. The dam site is located on the St. John River about three miles upstream from the town of St. Francis, Aroostook County, Maine about nine miles downstream from the mouth of the Allagash River, and about 290 miles from the mouth of the river at St. John, New Brunswick.

DESCRIPTION OF THE AREA

3. The St. John River drains about 21,360 square miles in northern Maine and the Provinces of New Brunswick and Quebec in Canada. The river rises as the Southwest Branch in Little St. John Pond and flows about 38 miles along the International boundary before entering Maine in northern Somerset County. After flowing northeast through western Aroostook and northern Somerset Counties for about 95 miles, it is joined by the St. Francis River near the town of St. Francis. From this point the river continues to flow northeast to Madawaska, Maine, where it changes its course to the southeast, entering New Brunswick at Hamlin, Maine, about 70 miles from St. Francis. It then continues southeast about 200 miles to the point where it empties into the Bay of Fundy at the City of St. John, New Brunswick. The total length of the St. John



Valley is about 365 miles. There are no major water development projects on the St. John in Maine. The Grand Falls Dam and the recently completed Beechwood Dam, both hydroelectric projects, are located in New Brunswick. In addition, there are several potential hydroelectric development sites on the St. John in New Brunswick.

4. Most of the basin is a maturely eroded upland of moderate relief. In general, it is underlain with shales, limestones and sandstones of sedimentary origin covered with glacial till of variable silty, gravelly sand with cobbles and boulders to varying depths. Large areas of the upper basin are overlain with peat and other organic materials.

5. Northern hardwood and spruce-fir forests occupy just under 80 percent of the basin, agricultural land occupies about 16 percent, while the remainder of the basin is covered by water. Agricultural areas are located downstream from the proposed dam site, with the exception of those small portions of the upper drainage which are located in Quebec. Potatoes are grown on the majority of the agricultural lands for national market. Aroostook County, Maine produces about 17 percent of the national potato crop. The forested areas produce pulpwood and saw timber from large tracts owned by various paper producing corporations.

6. The climate of the basin is of a humid continental type, with short, cool summers and long, cold winters. The basin is subject to both maritime and continental air masses, with the latter becoming more dominant in interior portions and upper elevations. The United States Weather Bureau Station at Fort Kent reported an average annual temperature of 39°F. over an 8-year period. During the same 8-year period minimum

average monthly temperature of 9°F. was recorded in January, and the maximum average monthly temperature of 67°F. was recorded in July. Extreme temperatures range from -40°F. to over 100°F.

7. While about two-thirds of the entire St. John River drainage basin lies in Canada, most of the 4,060 square miles upstream from the proposed dam site lie in Maine. The upper headwater area, almost as large as the State of Connecticut, consists of rolling uplands dissected by streams. There are many lakes and ponds, with the majority concentrated in the Allagash River drainage in the eastern section.

8. Larger tributaries upstream from the dam site include the Allagash River, Little Black and Big Black River, and Baker Branch. Except for the Allagash River drainage and Baker Branch, the above tributaries and several smaller tributaries drain small portions of Quebec. About 3 miles downstream from the dam site the St. Francis River enters the St. John from the north, and about 18 miles further downstream, the Fish River enters the St. John from the south near Fort Kent, Maine.

9. Average annual precipitation for the upper basin is about 38 inches of which the major part occurs during summer months. Winter precipitation occurs almost entirely as snow and averages about 100 inches. About 55 percent of the average annual precipitation forms surface run-off, amounting to approximately 1.65 cubic feet per second per square mile of drainage area for the upper quarter of the St. John River Basin.

10. Stream flow in the St. John River varies widely during the year. In the Allagash, it is partially stabilized by the many lakes and

ponds. At the dam site on the St. John River, the computed average annual stream flow is 6,780 cubic feet per second. The maximum instantaneous stream flow was 93,500 c.f.s., on May 5, 1933, and the maximum daily flow of 90,400 c.f.s. occurred on the same day. The minimum daily flow of record occurred on 19-20 February, 1948, with a flow of 365 c.f.s. The gradient of the St. John River is about 6 feet per mile in the 94 miles between the confluence with Baker Branch and the dam site, and the Allagash River drops about 5 feet per mile throughout its 62 mile length.

11. Access upstream from the dam site is limited. The major part of the area in Maine is accessible by automobile only over a few unimproved roads constructed and maintained by the paper companies. Automobile access is possible during the summer months over a few miles of these roads in this sparsely populated area. Access to a large part of this wilderness area is possible only by canoe, airplane, or on foot. Paper companies are increasing the number and mileage of access roads in order to reach new logging areas. This is slowly opening up additional sections to the public, especially the hunter and fisherman. Although it appears that this trend will continue, at least for the immediate future, ready access to most of this area is not likely to come about soon. The town of St. Francis is the nearest railroad terminal in Maine.

12. The major economic activity upstream from the dam site is logging. The original cut was for large white pine logs which were hewn square in the forest, hauled to the nearest stream or lake, and from there driven down the St. John River to St. John, New Brunswick and

shipped to England. Following this initial period, spruce, fir, pine, and cedar logs were cut full length and driven to saw mills on the St. John River until about 1922. From 1922 to 1946 only minor cuts of saw logs and pulpwood took place, during which time the annual forest growth accumulated. From 1946 to the present time, large annual cuts of sawlogs and pulpwood have occurred in the response to increasing demands.

13. Several routes exist for the transportation of forest products to sawmills or paper mills. Those cuts which take place in the lower section of the drainage upstream from the dam site are either trucked to St. Francis for rail shipment, or they are driven down the Little Black and the St. John Rivers to pulp and saw mills as far downstream as St. John, New Brunswick. Cuts made in the western portion of the headwater area are trucked into Canada through St. Pamphile, Lac-Frontiere, or Daquam. The American Realty tote road provides an outlet through Ashland, Maine, for forest products cut from the eastern section of the headwater area. Spruce and fir account for about 85% of the timber values while other species such as cedar, white pine, white and yellow birch, maple, beech, and poplar as sawlogs, veneer logs, and pulpwood make up the remaining valuation.

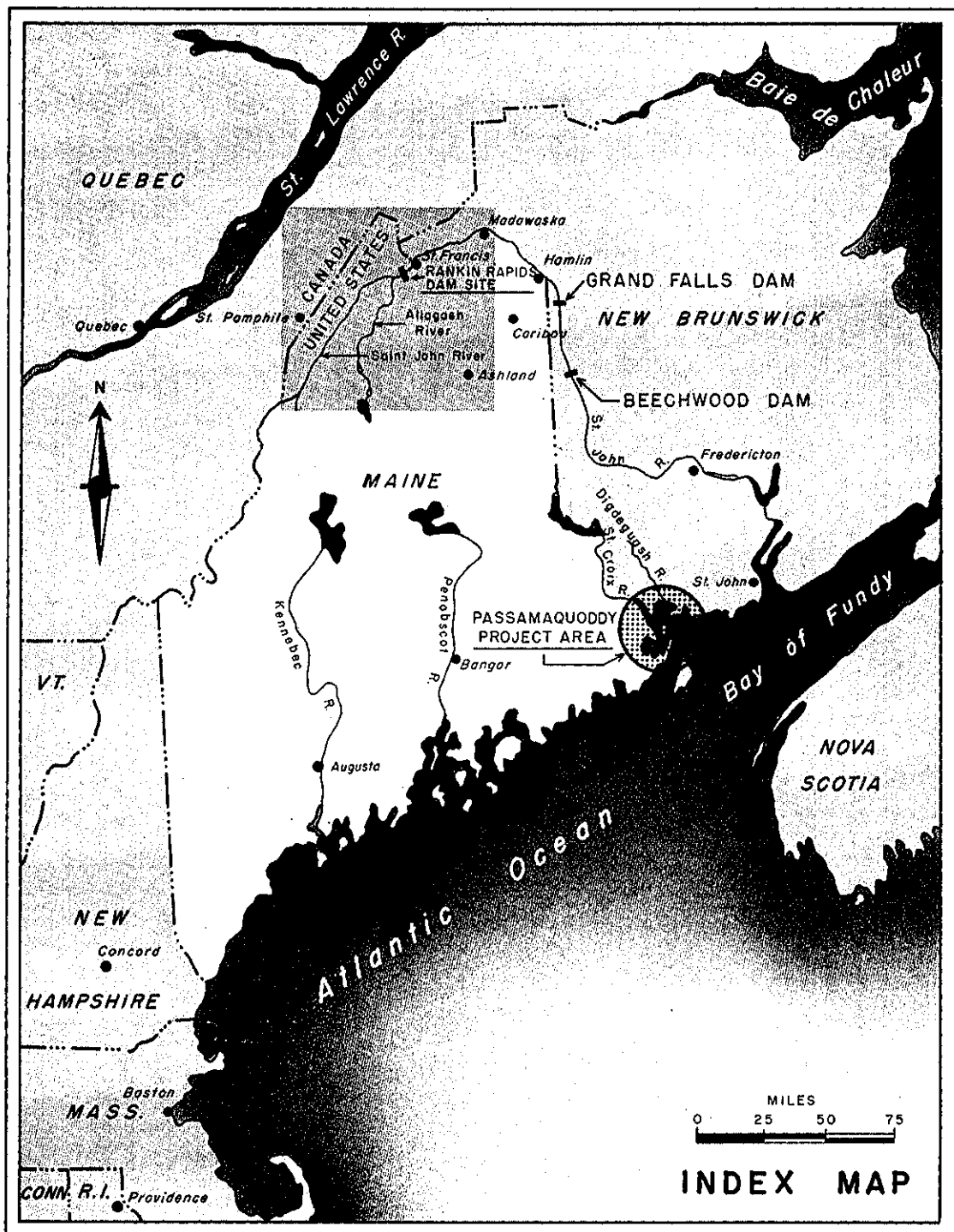
14. Catering to those who seek wilderness recreation, enhanced by fine opportunities for angling and hunting, is the one other major economic activity in the area. An outstanding attraction is the opportunity for wilderness canoe travel. Three of Maine's canoe routes culminate in this headwater area of the St. John River. The most outstanding canoe trail, which is nationally known, starts at Northeast Carry at the upper end of Moosehead Lake, Piscataquis County, and ends at Fort Kent. The

high point of this trip is the run down the Allagash River. The total length of the Allagash is about 62 miles and of this, about 47 miles is free flowing stream. Of the entire trip of 150 miles, the Allagash provides the major opportunity for downstream canoeing, while the remainder is lake travel. Several alternate points may be used to begin and end this canoe trip but in all cases the Allagash remains the high point of the trip. The culmination of the second canoe route is the St. John River from its headwaters to Fort Kent. This most challenging canoe route in the State starts at Northwest Carry at the upper end of Moosehead Lake and ends at Fort Kent about 200 miles north. Another popular route is to travel down the St. John River to Nine-Mile Bridge, cross over to Lake Umbagog, and follow the Allagash to its mouth. Of the two rivers, the Allagash is the better canoe stream as a result of more stable water levels.

15. The proposed Rankin Rapids Reservoir Project involves 99,500 acres. Within this area there are only about 17 miles of public roads, consisting of that part of State Route 161 upstream from the dam site, and private woods roads cross at several points. The total population within the reservoir area is about 880 persons. Most of these reside in the town of Dickey, and the remainder live along State Route 161. Outside of the settled areas along Route 161 there are about 33 permanent camps in the reservoir area. About 16 of these are used primarily for hunting and fishing and the remainder are for the use of State Fire Wardens and Game Wardens.

#### PLAN OF DEVELOPMENT

16. The proposed Rankin Rapids Reservoir Project will involve a total of 99,500 acres, all of which will be taken in fee simple. The total



**RANKIN RAPIDS DAM SITE**

Map showing the Rankin Rapids Dam site in Maine, Canada. The map includes the international border between Quebec, Canada and Maine, USA. Key features include:

- Rankin Rapids Dam Site:** Indicated by a large black arrow pointing to the St. Francis River.
- Geographical Features:**
  - Lakes:** East Lake, Beau Lake, Long Lake, Baker Lake, Eagle Lake, Three Brooks Mtn. 1578, Fish River Lake, Carr Pond, Carr Pond Mtn. 1390, Round Mtn. 2147, Moose Lake, Clear Lake Mtn. 1855, Narrows Lake, Church Lake, Cliff Lake, Sugar Mtn., Haystack Lake, Indian Lake, Algonquin Lake, Umbagog Lake, Hordwood Mtn. 1300, Clayton Lake, Umanak Lake, Chemungomoc Lake, Bate Lake, Snow Lake, Spoon Mtn., Grand Lake, Umbagog Lake, and many others.
  - Rivers:** St. Francis River, Fish River, and others.
  - Mountains:** Rocky Mtn. 1400, Musquodoc Mtn. 1500, Horner Mtn. 2054, Round Mtn. 2147, and others.
- Infrastructure:** Roads (e.g., 101, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 83



cost will be about \$135,000,000.

17. The dam will be of the rolled-earth type, 7,400 feet long with a top width of 40 feet and a maximum height of 333 feet. The top of the dam will be at elevation 875, while the streambed in the vicinity of the dam site is at elevation 542. Two 1,950-foot river diversion and low-level outlet tunnels 24 feet in diameter will be located in the right abutment, with invert elevations of 540 feet. These will be controlled with four 90-inch Howell-Bunger Valves and four 6 x 10-foot vertical lift emergency gates. The top of the low-level inlet structure will be at elevation 755.

18. The power intake structures will also be located in the right abutment. The invert elevation of the power intake will be at elevation 780. Water will be carried to the power house through eight exposed steel penstocks, each 16 feet in diameter. The inlet will be protected by trash racks and controlled by 11 x 22-foot gates. The operating head will range from about 270 feet to about 305 feet. The tailwater will be at elevation 555. An average annual output of 1,230,000,000 KWH is anticipated.

19. The spillway will be located in the left abutment of the dam with a crest elevation at 830 feet. Peak discharge capacity of the 280 foot wide spillway will be 167,000 c.f.s. and released water will spill through a concrete chute and stilling basin. Spillway control will be accomplished by tainter gates.

20. Operation of the reservoir has not been firmly established as yet. However, it has been indicated that a minimum flow of 2,000 c.f.s.



will be provided. Since the reservoir will contain sufficient storage capacity to afford a high degree of downstream regulation, it is possible that reservoir operations will be affected by hydroelectric power operations downstream on the St. John River as well as by requirements to maintain the firm power output of the Passamaquoddy project.

21. A rolled-earth dike, which will be approximately 100 feet high and about one-half mile long, will be required just above Falls Pond.

22. Of the 99,500 acres that will be acquired for this project, 98,700 acres, or about 155 square miles, will be occupied by the maximum pool plus a bordering strip 5 feet above the maximum pool. The balance of the 99,500 acres will be acquired outside the maximum pool plus bordering strip for the dam site and associated work areas. Table 1 summarizes pertinent data on the project.

Table 1. - Pertinent data, Rankin Rapids Reservoir Project

	Elevation (ft.m.s.l.)	Capacity (Acre-feet)	Surface Area (Acres) Total	Shore length (Approximate miles)	Main Stream Inundated St. John River (miles)
Maximum pool	860	8,230,000	93,300*	485	57
Average Annual pool	850	7,160,000	81,400	-	60** 50
Pool at Spillway Crest	830	5,430,000	61,700	-	44
Permanent pool	823	5,170,000	60,500	-	43
Maximum Surcharge	862.5	8,148,000	94,900	-	59
Total Reservoir Area	865	-	98,700	-	-
To be acquired out- side Reservoir area	-	-	800	-	-
Total Project Area		8,148,000	99,500		

\* The Corps of Engineers' "Preliminary Real Estate Planning Report" dated 24 September 1958 gives the total acreage at this elevation as 96,931 acres.

\*\* Allagash River

23. Clearing to elevation 865 is contemplated. The upper limit of clearing will be about 15 feet above the average pool elevation and about 2.5 feet above the surcharge elevation.

24. The reservoir will have three major arms, each of which will be long, narrow, and winding, with many smaller branches. The northwest arm will extend about 18 miles along the Little Black River and will have two smaller branches extending northward. The other arms will be roughly parallel and extend in a general southwest direction. The westernmost arm will follow the course of the St. John River for about 40 miles. Smaller branches will form along tributary streams such as the Chimenticook, the Pocwock, and the Big Black River. The pool will extend about 57 miles from the dam site to the upper pool limit on the St. John River. One large island will be formed just above the point where Big Black River joins the St. John. This island will be about 6 miles long, 3 miles wide, and encompass about 11,000 acres. A small island of 156 acres will be formed between lower sections of Chimenticook and Pocwock Streams. The eastern arm of the reservoir will follow the course of the Allagash River, inundating approximately 97 percent (60 miles) of its total length. Branches will form along the Chemquassabamticook, Musquacook, and other streams. The length of the pool from the dam site to its upper limit on the Allagash River will be about 67 miles. It is estimated that the average width of the pool will be about one mile, and the maximum width will be three miles.

25. Base data have been made available showing pool levels had the reservoir been in operation during the 23-year period 1930-1953 with a continuous discharge of 6,000 c.f.s. Pool elevations in the following

paragraph and figure 1 are based on these data.

26. Under actual operation, pool levels, except for the maximum and surcharge elevations, will probably vary, since they will depend on the operating rule curve finally selected. However, this discussion of pool levels and their effects provides a good indication of future conditions with the project. The average annual pool elevation at 850 covering 81,400 acres will be maintained about 50 percent of the time. The maximum elevation will be 860 and this pool will cover 93,300 acres. The minimum long-term elevation will be at 823 and the reservoir will not be drawn below this elevation. At elevations centering around 860, a one-foot change in pool level will expose or inundate about 1,000 acres. A surcharge elevation of 862.5 will form a pool inundating 94,900 acres.

27. At maximum pool elevation 860 the water will be 320 feet deep at the dam site. The invert of the power intake will then be at the 80 foot depth. The average annual pool will be 310 feet deep at the dam and the minimum pool will be 283 feet deep at the dam.

#### FISHERY SECTION

##### Without the Project

28. The drainage area above the dam site contains a brook trout fishery resource of outstanding value, unique in the northeast because of the uninterrupted length and size of the stream habitat. The streams within the project area make up an important part of this fishery. Here, in this wilderness, can be found abundant populations of brook trout, living in a habitat which is ideal for the species. The streams and lakes remain

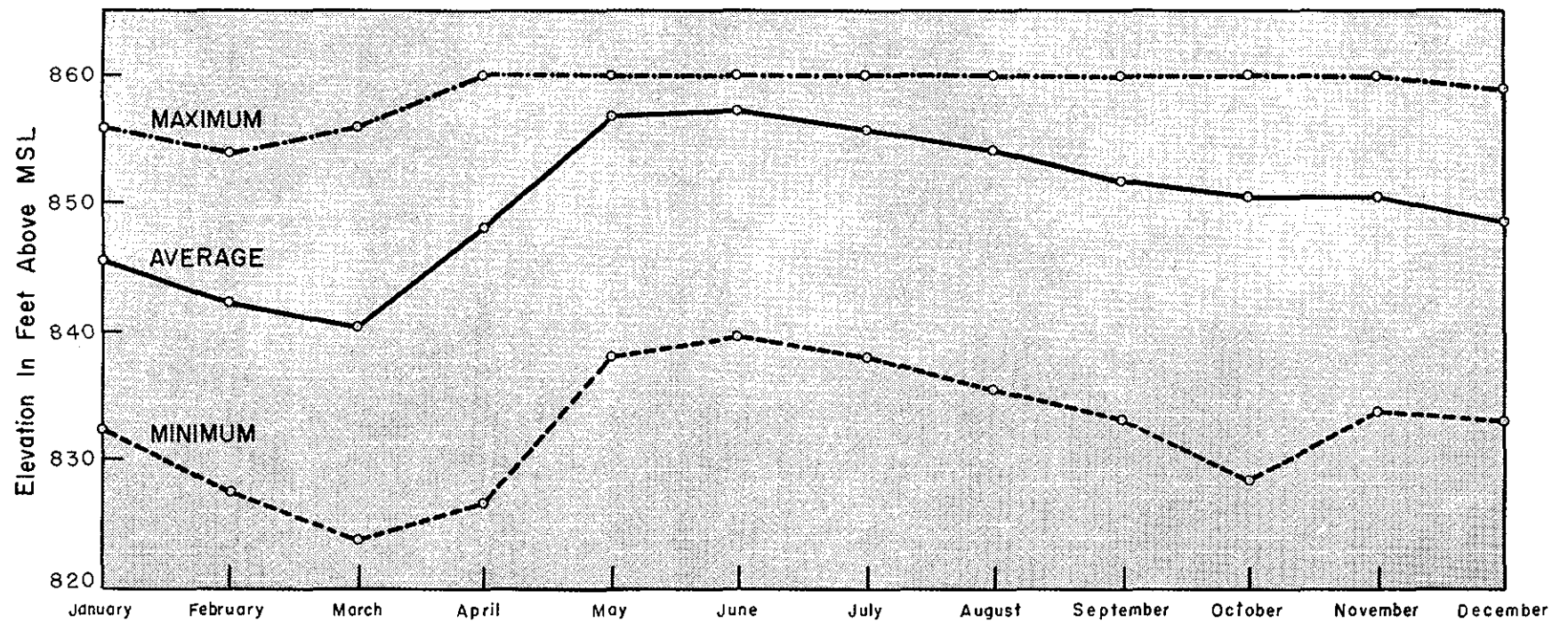


Figure 1.— Reservoir Pool Elevations

unpolluted by human waste or industrial effluent. While logging practices occasionally cause damage to the habitat, they have not yet had any large-scale effects.

29. The brook trout is native to the area and is the dominant species in the fishery. These trout are found in all the streams, lakes, and ponds during high-water periods of spring, early summer, and fall. When flow in the larger streams recedes and waters warm to temperatures above 70<sup>0</sup> F. during late summer months, the brook trout seek areas of cool water, such as tributary streams, mouths of tributaries, and flowing springs.

30. From the upper limit of the proposed reservoir, at Seven Islands, to the dam site, the St. John River is wide and shallow with high banks. The streambed is composed of gravel and boulders throughout and the gradient is gentle and uniform. Occasional rapids and deadwaters occur, but for the most part the river flows over long reaches of boulder riffles and flats.

31. The St. John River provides excellent seasonal trout habitat. Brook trout are well dispersed and active during spring, early summer, and fall. Abundant production of trout food organisms supports an abundant trout population.

32. Natural production of trout occurs throughout the St. John Basin. Some trout spawn in the main river while large numbers utilize the tributary streams. The project area contains the best spawning habitat in the basin. It is adequate to maintain an abundance of naturally produced trout within its own boundaries, in spite of the fact that trout access to some spawning tributaries is blocked by beaver

dams and natural barriers especially during low water periods. Above the proposed project area, spawning conditions are of poorer quality and blockage of spawning tributaries by beaver dams and natural barriers is a more serious factor. Table 2 summarizes trout habitat suitability of the tributaries to the upper St. John River.

Table 2. - Summary of tributary trout habitat suitability - Upper St. John River

	Number of tribu- taries checked	Spawning area in lower section		Trout nursery suitability				Obstruction near mouth				
		Exten- sive	Limited	Absent	Good	Fair	Poor	Passable	Difficult or impassable at low water levels			
									Beaver dam	Boulder cascades	Gravel delta	
Northwest Branch- Daaquam River to South Branch	4	-	2	2	-	1	3	4	-	-	-	Above Project Area
Forks to Ninemile	9	2	-	7	1	1	7	2	5	2	-	
Ninemile to Seven Islands	6	2	3	1	2	3	1	1	3	1	1	
Seven Islands to Big Black River	9	-	6	3	1	5	3	7	-	1	1	Within Project Area
Big Black River to Little Black R.	15	9	4	2	9	4	2	11	-	2	2	
Little Black R. to St. Francis R.	10	1	6	3	2	6	2	6	-	2	2	

1/ From: Warner, Kendall, "Preliminary Report on the Effects of the Proposed Rankin Rapids Dam on the Fisheries of the Upper St. John River Basin," Maine Department of Inland Fisheries and Game, 1957.



33. Big Black River, a major tributary at the upper end of the proposed pool, provides excellent seasonal trout habitat. The lower 8.5 mile reach is shallow with boulder riffles and rapids. The upper section of this river is mostly deadwater with large populations of yellow perch and fallfish. The Little Black River is well known for its trout fishery. The lower section is mostly deadwater and the upper section consists of interspersed pools, riffles, and flats. Logs were recently driven down this stream, causing damages to the streambed and to streambanks, especially where bulldozing was done to provide log landings. The lower section of Pocwock Stream is excellent trout habitat. The lower section of Chimenticook Stream provides less suitable habitat. Smaller tributary streams are excellent trout habitat.

34. Other species of fish known to occur in the river and in larger tributary streams, include the landlocked salmon, yellow perch, and fallfish. Salmon although not plentiful, are occasionally taken by anglers. These fish find their way into the St. John River from the Fish River drainage. The yellow perch are most often found in the deadwater and pool areas.

35. The Allagash River and its tributaries support one of the outstanding stream fisheries for brook trout in the United States. This opinion is held not only by State fishery biologists but is widely held by prominent sport fishermen. The July 3, 1959 letter from Mr. Wynn Davis, well-known outdoor writer reproduced in the Appendix, is representative in this regard. The March 2, 1958 Resolution by the National Wildlife

Federation, also reproduced in the Appendix, is based upon a similar assessment. Both the Allagash River and the St. John River have been listed among the 100 best trout streams in the United States.<sup>2/</sup> The wilderness which the river drains not only serves to protect the brook trout habitat, but in itself provides a particular attractiveness for anglers. The Allagash River is free from pollution. Two dams have been constructed on the river, one at the outlet of Long Lake, and the other at the head of the river at Churchill Lake. Both are log-crib dams originally built for logging purposes. The Long Lake Dam is in poor repair and is not holding the head of water for which it was originally designed. The dam at Churchill Lake washed out in the spring of 1958.

36. Lumbering operations in the drainage have been extensive in recent years. However, the operations have not yet encroached on the Allagash River itself and there is little evidence of stream damage in much of the remainder of the Allagash drainage. Forest cover remains good and a large part of the stream mileage is well shaded by streamside vegetation.

37. In comparison to the St. John River and its tributaries, trout habitat in the Allagash drainage is superior in both quality and quantity. Water levels are far more stable and the stream channel, in general, is deeper. The gradient is uniform and gentle, and the river is characterized by large pools broken by boulder and cobble riffles, rapids, and flats.

<sup>2/</sup> Davis, Wynn, 1959, 100 Best Trout Streams, Outdoor Life, May, p.37 Vol. 123, No. 5

A few deadwaters occur, notably the Musquacook Deadwater and the deadwater above Allagash Falls.

38. The river provides excellent habitat for brook trout. Spawning conditions appear to be adequate to maintain populations under present utilization. Trout spawn both in the river where spring seepages occur and in lower sections of the tributary stream system. Only a few spawning and nursery tributaries are blocked by beaver dams, and most of the tributaries enter the river without impassable cascades at their mouths.

39. In addition to brook trout, fallfish are common in the drainage. It is reasonable to assume that several of the species occurring in the lakes may also be found in the river, since the lakes are directly connected. Yellow perch do not occur in the Allagash River drainage above Allagash Falls, a 25-foot barrier to fish migration, located 13.5 miles above the mouth. This barrier also prevents landlocked salmon from ascending the stream.

40. Umsaskis Lake, Long Lake, and Round Pond are located along the upper reach of the Allagash River within the project area. Umsaskis Lake has a surface area of 1,222 acres, Long Lake, 1,203 acres, and Round Pond, 697 acres. Umsaskis Lake is the deepest lake with a maximum depth of 58 feet. Long Lake has a maximum depth of 48 feet and Round Pond has a maximum depth of 36 feet. Table 3 shows the fish species composition of these water bodies.

Table 3. - Fish species occurring in  
Umsaskis and Long Lakes, and Round Pond

<u>Species</u>	<u>Umsaskis Lake</u>	<u>Long Lake</u>	<u>Round Pond</u>
Brook Trout	x	x	x
Lake Trout	x	x	
Brown Bullhead	x	x	
Smelt	x	x	
Lake Whitefish	x	x	x
Round Whitefish	x	x	x
White Sucker	x	x	x
Longnose Sucker	x	x	x
Minnows			
Fallfish	x	x	x
Creek Chub	x	x	x
Blacknose Shiner	x	x	x
Blacknose Dace	x	x	x
Pearl Dace	x	x	x
Finescale Dace	x	x	
Redbelly Dace	x	x	
Common Shiner	x	x	
Lake Chub	x	x	x
Cusk	x	x	
Threespine Stickleback	x	x	x
Freshwater Sculpin	x	x	x

41. Biologists of the Maine Department of Inland Fisheries and Game have recommended that Umsaskis Lake be managed for both brook and lake trout. As deep water areas of Long Lake are restricted, management of this lake primarily for brook trout has been recommended, and management of Round Pond for brook trout was also recommended. Cunliffe Lake, 107 acres in area, probably contains a fish population similar to that of Long Lake with the exception of lake trout.

42. Most tributaries to the Allagash River provide excellent year-round brook trout habitat. Lower sections of several larger tributaries, such as Schedule Brook, Big Brook, Musquacook Stream, and Chemquassabamticook Stream provide seasonal trout habitat.

43. The fishery resources of the project area is now moderately to heavily utilized in terms of a wilderness-type fishery. Sections of streams and lakes near access points receive intensive seasonal utilization. The St. John River can be reached by road at only a few places such as Nine-Mile Bridge, Seven Islands, upper sections of the Big Black and Little Black Rivers, and the lower section from Fox Brook to the dam site. The remainder of this river is readily accessible by canoe during spring and early summer and receives moderate angling pressure. The upper Allagash River can be reached directly by automobile only at Umsaskis Lake via the road from Lac-Frontier, Quebec, which crosses Nine-Mile Bridge. The lower section is accessible over the road from Route 161 which follows the stream from its mouth upstream for a distance of about 15 miles. The Allagash River is moderately utilized, receiving heavier fishing pressure than does the St. John. The angling opportunities are attractive to the many canoeists traveling the river. A number of anglers base their trips from the few private cabins. Other anglers, using outboard motors, ascend the river from just above Allagash Falls.

44. It is anticipated that, as access improves, angling pressures in the project area will increase. With application of known fishery management and watershed management practices, when necessary, this fishery has the potential to provide sustained angling opportunities for many anglers under a wilderness recreation program. This is particularly true of the Allagash River since it has a greater fishery potential than the St. John River.

#### With the Project

45. Construction of the Rankin Rapids Project will cause complete destruction of the valuable stream trout fishery within the project area. In addition, project construction will cause marked deterioration of the existing trout fishery in the Allagash River drainage upstream from the project area as a result of the introduction of yellow perch. Compensation of these losses in quality or kind would be impossible. However, some compensation will be provided by the fishery within the reservoir pool. This fishery will be dominated by species adapted to a lake-type environment, which are not significant in the existing fauna.

46. The reservoir at maximum pool elevation of 860 feet will inundate about 300 miles of river and tributary streams, including 60 miles, or about 98 percent of the Allagash River. In addition, the pool will inundate many miles of smaller, unnamed tributary streams, and about 3,230 acres of existing lakes and ponds. Table 4 gives a detailed breakdown of the stream mileages, lakes, and ponds which will be inundated. According to available data (see paragraph 27), the pool will have an average annual fluctuation of about 17 feet with the minimum pool level occurring in March and the maximum pool level in June. The minimum elevation occurring during the 23-year period of study was 823.8 feet, indicating that the greatest long-term fluctuation would be in the vicinity of 36 feet. Figure 1 indicates average annual, maximum, and minimum pool elevations which would have occurred during the 23-year study period.

Table 4. - Streams, lakes, and ponds which  
would be inundated by the Rankin  
Rapids Project

<u>Streams</u>	<u>Miles</u>
St. John River	57
Little Black River	25
Pocwock Stream	7
Chimenticook Stream	4
Big Black River	19
Smaller Named Tributaries	65
Total *	177
Allagash River	60
Big Brook	8
Five Finger Brook	2
Musquacook Stream	6
Schedule Brook	2
Chemquassambanticook Stream	5
Cunliffe Brook	5
Smaller Named Tributaries	31
Total *	119
<u>Lakes and Ponds</u>	<u>Acres</u>
Umsaskis Lake	1,222
Long Lake and Harvey Pond	1,203
Round Pond	697
Cunliffe Lake	107
	3,229

\*Does not include the many, smaller, unnamed streams

47. The brook trout is not particularly well adapted to the type of environment which will be offered by the reservoir pool. In shallower sections of the pool, where the warmer waters will be found, yellow perch and fallfish will abound with other species suited to this habitat. The deep waters of the pool will harbor the lake trout, whitefish,

landlocked salmon, and smelt.

48. With the reservoir pool at maximum elevation the power intakes will be located at a depth of 80 feet or about 240 feet above the bottom of the reservoir. This level divides the total area and volume of the reservoir approximately in half. It is possible that much of the deeper half of the reservoir, from 80 to 320 feet in depth, will not be productive of fish food organisms or fish life. The upper half of the pool will support most of the fish populations and much of this area will be productive of fish food organisms. Approximately 20,000 acres of the reservoir will be 0 to 20 feet deep, and it is this area which will provide the largest part of the biological production to support the fish populations. Also, in this area the populations of yellow perch, fallfish, and some forage fish will become most abundant. Table 5 shows the area and volume of water that will be contained in 20-foot depth increments. Without further information it is not possible to predict the type or quality of the future reservoir fishery.



Table 5. - Estimated storage-area data

Elevation Feet M. S. L. at Dam	Depth at Dam (feet)	Storage (acre feet)	Percent of Total Storage	Area (acres)	Percent of Total Area
<u>Maximum</u>					
	860				
Average	0-10	870,000	11	10,800	12
Annual 850	10-20	840,000	10	8,900	10
	20-40	1,270,000	16	14,900	16
	40-60	1,110,000	14	10,100	11
	60-80	900,000	11	7,800	8
Power	80-100	740,000	9	6,500	7
Intake 780	100-120	610,000	7	6,600	7
	120-140	510,000	6	5,100	5
	140-160	420,000	5	4,300	5
	160-180	330,000	4	3,900	4
	180-200	250,000	3	3,700	4
	200-220	180,000	2	3,500	4
	220-240	110,000	1	3,400	4
	240-260	60,000	.7	2,100	2
	260-280	10,000	.1	1,000	1
	280-300	15,000	.2	400	.4
	300-320	5,000	.1	300	.3
Streambed					
	540				
Total		8,230,000		93,300	

49. The slow flushing rate of the reservoir will help somewhat in overcoming deficiencies in productivity brought about by climatic conditions and the relatively low fertility of the drainage area. It has been found that most reservoirs produce a peak in fish populations relatively early in their histories, followed by a stabilizing of fish populations at somewhat lower levels. This can be anticipated in the Rankin Rapids pool.

50. Construction of the reservoir will result in the introduction of yellow perch into the Allagash drainage through inundation

of the natural barrier at Allagash Falls. This aggressive species is a direct competitor of trout and has been known to cause deterioration of brook trout fisheries. Several States are carrying out programs for reclamation of trout waters by removing undesirable fish species including the yellow perch. For example, from 1952 to 1954, New York State reclaimed a chain of connected waters forming the headwaters of the West Branch, St. Regis River in the Adirondacks primarily to eradicate the yellow perch from trout waters.<sup>3/</sup> This project involved reclamation of fourteen ponds and about 21 miles of streams as well as construction of four barrier dams to prevent re-introduction of undesirable fish species. The introduction of yellow perch will have serious effects on the brook trout fishery of the Allagash drainage. Chemical reclamation of these waters however would be impractical due to the extent of surface waters.

51. A long reach of the St. John River extending many miles downstream from the proposed dam site will be affected by the project. Some benefits will accrue to the lightly utilized fishery through partial stabilization of water flows. The amount of benefits will depend upon the reservoir operating procedures finally selected. Maximum benefits will not be realized if water is released at temperatures below the optimum for resident species during normal growth periods.

52. In summary, it is anticipated that the reservoir pool will provide fishery values which will only partially compensate losses. The

<sup>3/</sup> Zilliox, Robert G. and Martin Pfeiffer, 1956, Restoration of Brook Trout Fishing in a Chain of Connected Waters, New York Fish and Game Journal, Vol. 3, No. 2, July, pp. 167-190

reservoir fishery could consist primarily of lake trout, or other species adapted to the reservoir habitat, which might attain a moderate population if spawning areas and food supplies are adequate. The net result will be a complete change from the existing high-value stream-fishery for brook trout to a lake-type fishery of lesser value.

#### WILDLIFE SECTION

##### Without the Project

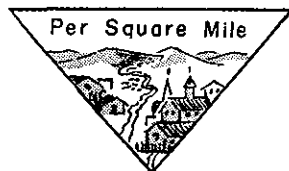
53. Approximately 68 percent of the project area is covered with a coniferous forest dominated by the northern spruce-fir forest type. Interspersed throughout the area are cedar swamps and white-pine stands. Northern hardwood stands of sugar maple-beech-yellow birch make up only about two percent of the forest cover and mixed hardwood-softwood stands comprise about 13 percent. Approximately 30 percent of the softwood stands in the reservoir area have been cut-over or are too thinly stocked to cut for pulp or timber at the present time. The remainder are considered to be suitable for cutting. Table 6 shows acreages and percentages of the total area within gross cover types. Even though the total acreages differ from that shown in table 1, the percentages are considered sufficiently accurate for the project area. The alder areas are found along portions of the stream banks and around older beaver flowages. The 12 percent total shown as "water and flowage" includes the numerous beaver flowages as well as stream surface area and open water bodies. The relative percentage of softwood growth is probably higher within the project area than it is outside the area as the hardwoods tend to predominate on the hilltops and ridges.

Table 6. - Gross cover types within the maximum pool area<sup>1/</sup>

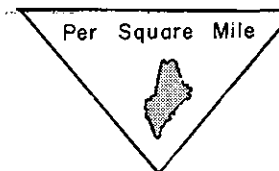
Type	Acres	Percent	Acres	Percent
Softwood	65,521	67.6		
Mixedwood	12,617	13.0		
Hardwood	1,611	1.7		
Total Forested			79,749	82.3
Agricultural	924	1.0		
Abandoned Agricultural	1,034	1.1		
Total Open Lands			1,958	2.1
Alder	2,575	2.7		
Bog	638	0.7		
Total Alder & Bog			3,213	3.3
Water and Flowage	<u>12,011</u>	12.4	<u>12,011</u>	12.4
	96,931		96,931	

1/ From "Preliminary Real Estate Planning Report" 24 September 1958, Corps of Engineers.

54. The whitetail deer is the most important game species in the area. The harvest of this species is low when compared to the rest of the State. In 1957 the statewide deer kill averaged 1.32 deer per square mile while the kill was only 0.45 per square mile in townships in and adjacent to the project area. During the past ten years the deer kill in the project area has increased sharply as shown in figure 2. Year-to-year variations in the kill in this area are expected since weather conditions control access to a large degree. However, in the long run this area will receive increasing hunting pressure. The increased kill and the extension of hunting into the more remote sections is primarily due to construction of many miles of logging roads. Even with the increased pressure the deer herd of this area is under-utilized at the present time. It is estimated that the kill in the area is only 5-10 percent of the fall

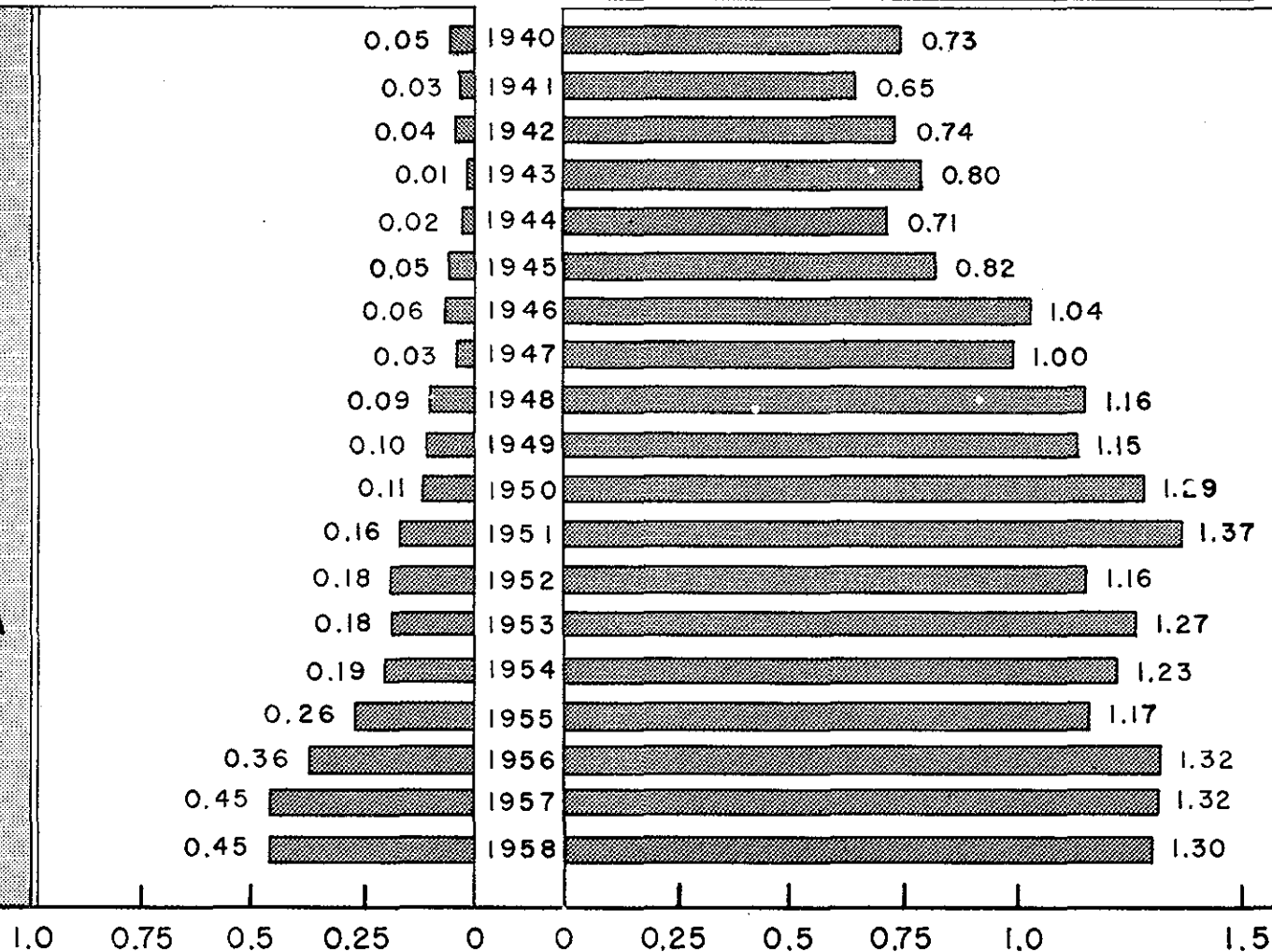


Number Of Deer Killed  
In Town Areas Of St. John And Allagash River



Number Of Deer Killed  
State Wide

**FIGURE - 2**  
  
**COMPARISON  
OF  
DEER KILL  
IN  
VICINITY OF  
PROJECT AREA  
AND  
STATE WIDE**



population out of a permissible 20 percent kill. Statewide, the present hunting removal is an estimated 15-20 percent of fall deer populations out of a permissible kill of 25 percent.

55. The severe winters and heavy snowfalls of the area cause deer to concentrate in yards, usually during January, February, and March. Almost all of the deer yards in the upper St. John River drainage, including the project area, are located along watercourses and where dense stands of mature conifers are found. Sufficient stocks of food in and at the periphery of the yards are required to bring the deer through the winter. It has been found that the deer will seek the same yards year after year. The deer yards located in the project area are of vital importance in maintaining populations and attract deer from areas outside the project boundaries.

56. The black bear is common to abundant throughout the project area. Until 1957, a bounty was paid on this species, when taken in organized townships and plantations. However, the Allagash plantation is the only locality in the project area where bear are bountied and five or six were reported each year. This popular trophy species is taken at every opportunity by hunters in connection with seeking other species, even though few hunters make it the exclusive objective of their hunt.

57. Moose are common in parts of the project area and are increasing in numbers. At one time this species ranged over the entire State and through much of the northeast. The advance of civilization drove them to seek remote areas, and thus by 1904 they were found only in northern Maine counties. Since then, they have become common in

counties lying south of the project area. The Maine moose herd is the last sizable remnant of the species in eastern United States.

58. Other forest-game species occurring in the project area include ruffed grouse, spruce grouse, woodcock, and snowshoe hare. Hunting for these species is concentrated near settlements and along roads, and the hunting pressure in the project area is very light. The increase in logging activities over the past few years has resulted in slightly improved habitat conditions for some species, particularly ruffed grouse, and has probably resulted in some increase in hunting pressure.

59. Fur-animal trapping was at one time much more important than at present. The recent low prices on furs have not encouraged trappers to work this area, but a few fly into the more remote sections during the beaver season. If prices improved on furs, a heavier trapping effort can be anticipated. Not more than a dozen trappers utilize the area and only two or three realize any considerable part of their annual income from trapping. Beaver, mink, otter, and muskrat make up the bulk of the fur take. Weasel, skunk, raccoon, fox, and fisher are also found in the project area but comprise only a small part of the fur harvest. The fisher was once found throughout the State but heavy trapping pressure and the advance of civilization resulted in its extirpation in the southern part. A number of these animals survived in the wilderness areas, forming a nucleus from which, after the animals were completely protected in 1937, the population began to increase. This increase continued to the point where, in 1955, an open season of one month was

established. The marten, which was once found over much of the State, was extirpated in many areas, but a few colonies remain in the project area. This species continues to be completely protected.

60. The beaver is the most important fur animal in the State. It is abundant within the project area and most of the tributary streams support colonies. In addition to the pelt value, the beaver provides other benefits through construction of dams. The flowages provided by the dams benefit almost all other wildlife species found in the project area. Beaver dams have both positive and negative effects on the brook trout fishery.

61. The many beaver flowages provide significant breeding areas for several species of waterfowl, including the black duck (Maine's most important species), blue-winged teal, goldeneye, wood duck, and ring-necked duck. In late summer, concentrations of ducks, mostly blacks, can be found at Long Lake, where marshes at the mouths of inlets provide good feeding habitat. This lake and a four-mile reach of the Little Balck River have been found to have significant value for waterfowl.<sup>4/</sup> Very little, if any, waterfowl hunting takes place in the project area.

62. The wildlife species found within and adjacent to the project area are of considerable value even though not heavily utilized at the present time. Heretofore, this wilderness area acted as a reserve of wildlife which would be expected to take up increasing hunting pressures as more accessible areas became heavily hunted. The recent increase in

<sup>4/</sup> Permanent Water Areas of Significance to Waterfowl in Maine,  
U. S. Fish and Wildlife Service, March 1959.



deer hunting indicates that tapping of this reserve has begun. When populations of rare species became drastically reduced throughout the State this wilderness area continued to support these species. The importance of this wilderness area takes on particular significance when past history of populations of marten indicate that at one time it could be found in Maine only in the proposed project area.

#### With the Project

63. Construction of the proposed Rankin Rapids Dam and Reservoir will involve a total of 99,500 acres all of which will be drastically affected. Outside of the 800 acres proposed for the dam site, power plant, and associated work areas 98,700 acres will be completely cleared within the pool area. The average annual pool at elevation 850 will inundate 81,400 acres. The maximum pool at elevation 860, which will be held less than 10 percent of the time, will inundate 93,300 acres. The reservoir pool will reach maximum surcharge at elevation 862.5 infrequently, inundating 94,900 acres.

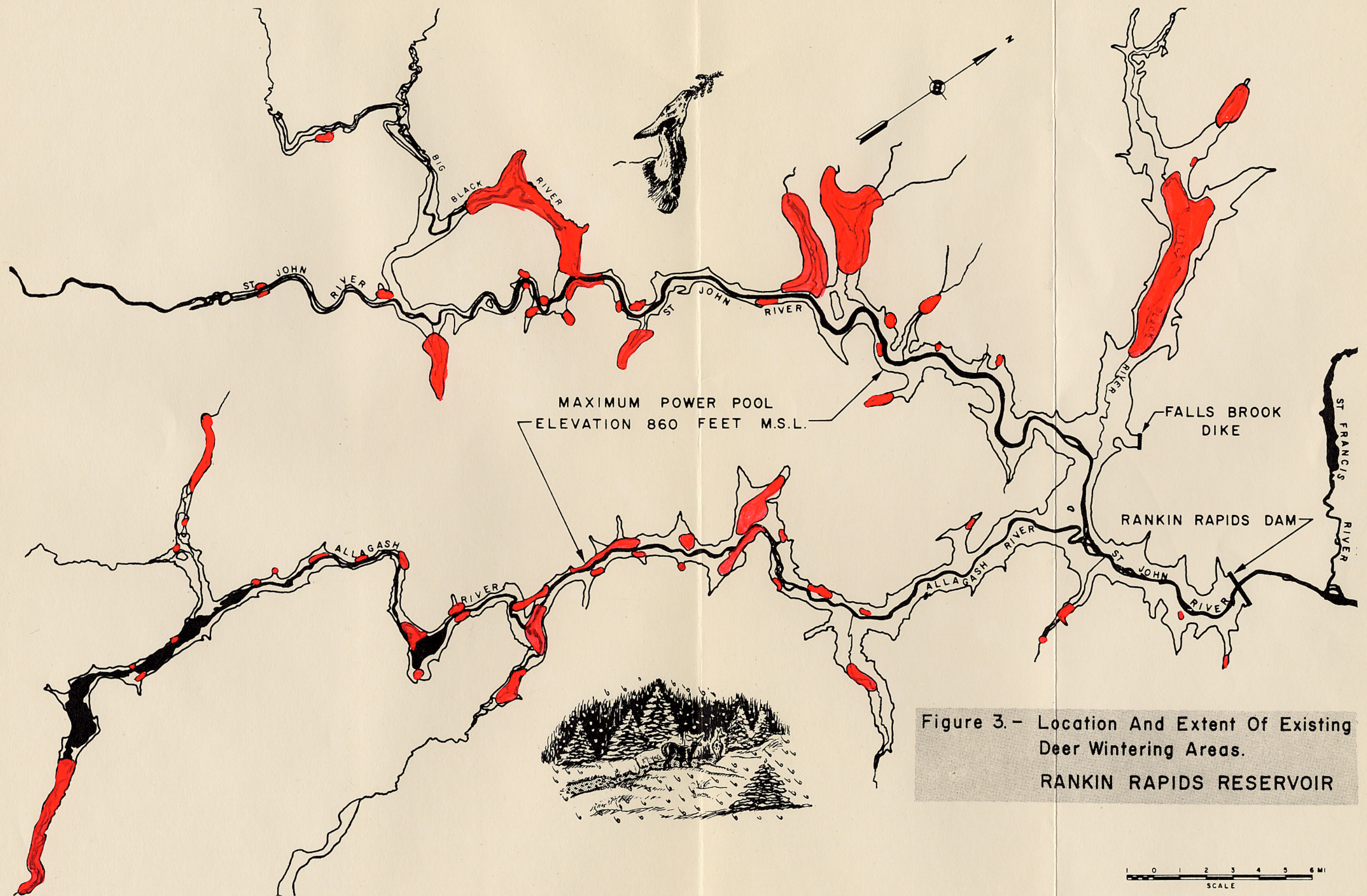
64. Under normal conditions, the annual fluctuations will range between elevations 840.4 in March and 857.1 in June, a total of about 16.7 feet. Since about 1,000 acres will be exposed or inundated for each one foot rise or fall in water levels, about 17,000 acres will be alternately exposed and inundated during the year. The clearing at the reservoir periphery would normally be beneficial to wildlife as edge-type habitat if no fluctuations occurred, but it is expected that the proposed fluctuation would reduce these benefits by inhibiting development of vegetation providing food and cover for wildlife. In

any case, the benefits involved will not compensate for the loss of almost 94,000 acres of good wildlife habitat.

65. Whitetail deer will permanently lose 81,400 acres (127 square miles) of habitat. In addition, another 11,900 acres (18 square miles) will be periodically inundated. While this latter acreage will not be a total loss in terms of deer habitat, it will cease to supply critical deer wintering cover. Sixty-four deer yards, encompassing about 22,000 acres, will be destroyed. These yards serve a minimum of 1,200 deer during the winter, and serve an approximate area of 512 square miles. Figure 3 shows the location and approximate extent of existing yards in relation to project boundaries. Since many of the deer wintering in these yards come from outside the project area, the effects of the loss will be extensive. Deer populations within project boundaries will be forced out of the area by the reservoir pool. These will seek to use deer yards outside project boundaries during the winter, many of which are already over-utilized. In summary it is certain that a drastic reduction in the deer population will take place within the area affected by the project. Further studies are required to determine the magnitude of this reduction.

66. Other wildlife species inhabiting the proposed project area will also lose 81,400 acres of habitat permanently and will have only limited use of the additional 11,900 acres. The displaced wildlife population will be lost, since wildlife habitat in surrounding areas is being utilized to its maximum capacity. Some improvement in habitat can be expected from development of brushy cover along the cleared







shoreline above the flowage. This shoreline will benefit some species, such as the grouse and deer inhabiting areas contiguous to the project, but will not compensate for the overall loss of wildlife habitat. Habitat suitable for aquatic species will not develop along the shoreline of the proposed reservoir.

67. Flooding will cause complete loss of important waterfowl breeding areas within the flow line. This waterfowl producing habitat is of much greater significance than the resting area that will be provided by the reservoir pool. Any benefits from the project will be competing with lakes and ponds in the State which more than meet the need for resting habitat. Many acres of the proposed pool would be sufficiently shallow to develop marsh areas which could be of some benefit to waterfowl and other species, but the planned fluctuation of the pool level will nullify their value for wildlife.

68. In summary the proposed reservoir will cause the loss of the wildlife populations inhabiting the project area and in addition losses to deer will extend far beyond the limits of the project because of the loss of crucial wintering areas utilized by deer outside the project area. Construction of the reservoir will also afford easy access by boat to thousands of acres of previously almost inaccessible wilderness area.

#### DISCUSSION

69. It has been predicted that by 1975, the large metropolitan area along the eastern seaboard will reach from southern Maine well into Virginia. This chain of central cities surrounded by rapidly

extending inter-urban areas consisting of housing developments, industrial plants, and shopping centers now accounts for about 30,000,000 inhabitants, or almost one-fifth of the national population. It has also been predicted that the population of the United States will reach 225-230 million by 1975, and that nearly all of this increase will be located within urban and suburban areas.

70. This expanding population concentrated along the eastern seaboard will demand additional recreational facilities for their increasing leisure time activities. Fishing and hunting comprise a large part of the recreational demand as shown by the fact that, in 1955, one in every five persons in this country either fished or hunted. In addition, fishing and hunting appear to be increasing in popularity. Statistics show that in the 11 coastal States from Maine to Virginia, the sale of fishing and hunting licenses increased 18.6% while the population increased 8.7% between 1950 and 1957. Increasing demands can be anticipated from expanding populations.

71. The solution to the problem of supplying facilities to meet this demand is becoming more and more critical. As the central cities sprawl outward and towards one another, they invade areas which are now meeting some of this demand. As this process goes on the recreation seeker must travel further and further afield, aided by the accelerated highway building program now underway. At the present time, northern Maine is less than 15 hours driving time from New York City, but in the near future the travel time from New York City will be reduced and the ease of travel greatly enhanced by new highways.

72. A portion of the demand for recreational facilities is for the high-quality wilderness-type recreation. Hunting and fishing comprise a major part of this demand. This type of recreation presupposes low-utilization and remoteness from man's activities. In fact, very careful planning and management is necessary to permit or to gain maximum use without reducing the intrinsic value of such areas. In eastern United States, this northwestern section of Maine is the only remaining wilderness area of its type, by present day concepts, which can supply this demand.

73. The existence of abundant stocks of fish and game offers strong inducement for the fisherman or hunter to travel to the area. Also, the anticipation of sighting an occasional moose, bear, or other species in the wilderness setting is part of the flavor of a wilderness trip to those who do not hunt or fish. However, the primary attraction of this area is the Allagash River. Here, expert or novice canoeist may travel 60 miles through the heart of a wilderness area from Churchill Lake to the St. John River. Along the way he will see little evidence of man's activities. If he wishes, the trip can be made in a leisurely fashion with stops at any of the nine camping sites established and maintained by the Maine Forest Service in cooperation with the landowners. If he is so inclined, he may fish for brook trout in the main stream or in any of the tributaries; explore the surrounding forests, or investigate the abandoned logging camps and deserted cabins. Every year a number of organized boys' groups take advantage of the opportunity for wilderness canoe travel offered by the

Allagash. Some of these groups consist of older boys, their leaders, and guides from established summer camps. Other groups are organized for the sole purpose of spending a month or more in the wilderness and have been doing this for many years. They usually include a trip down the Allagash as the high-point of their itinerary. A letter from a typical group of this type is included in the Appendix.

74. The State of Maine is fortunate in possessing an abundant supply of lakes and ponds. The 74,890 acre Moosehead Lake, the largest in the State, is located only 50 miles to the south of the reservoir site.

Many lakes and ponds, especially in the northwestern section, still can be reached only by airplane, canoe, or on foot. However, the State is not well supplied with rivers which offer opportunities for wilderness canoeing. The Allagash is outstanding in this regard, and no other stream in Maine or in the eastern United States offers equal potentials for development of wilderness canoeing and recreation. In 1952 it was estimated that the business of supplying goods and services to hunters and fishermen in Maine accounted for over 40 million dollars, making it the fourth major industry in the State. A large share of the income from fishing and hunting comes from outside the State. In 1955 Maine ranked third among the forty-nine States in the sale of non-resident fishing and hunting licenses as compared to the sale of resident licenses.<sup>5/</sup> The contribution of the Allagash area to this industry is small at the present time, but under proper development its economic

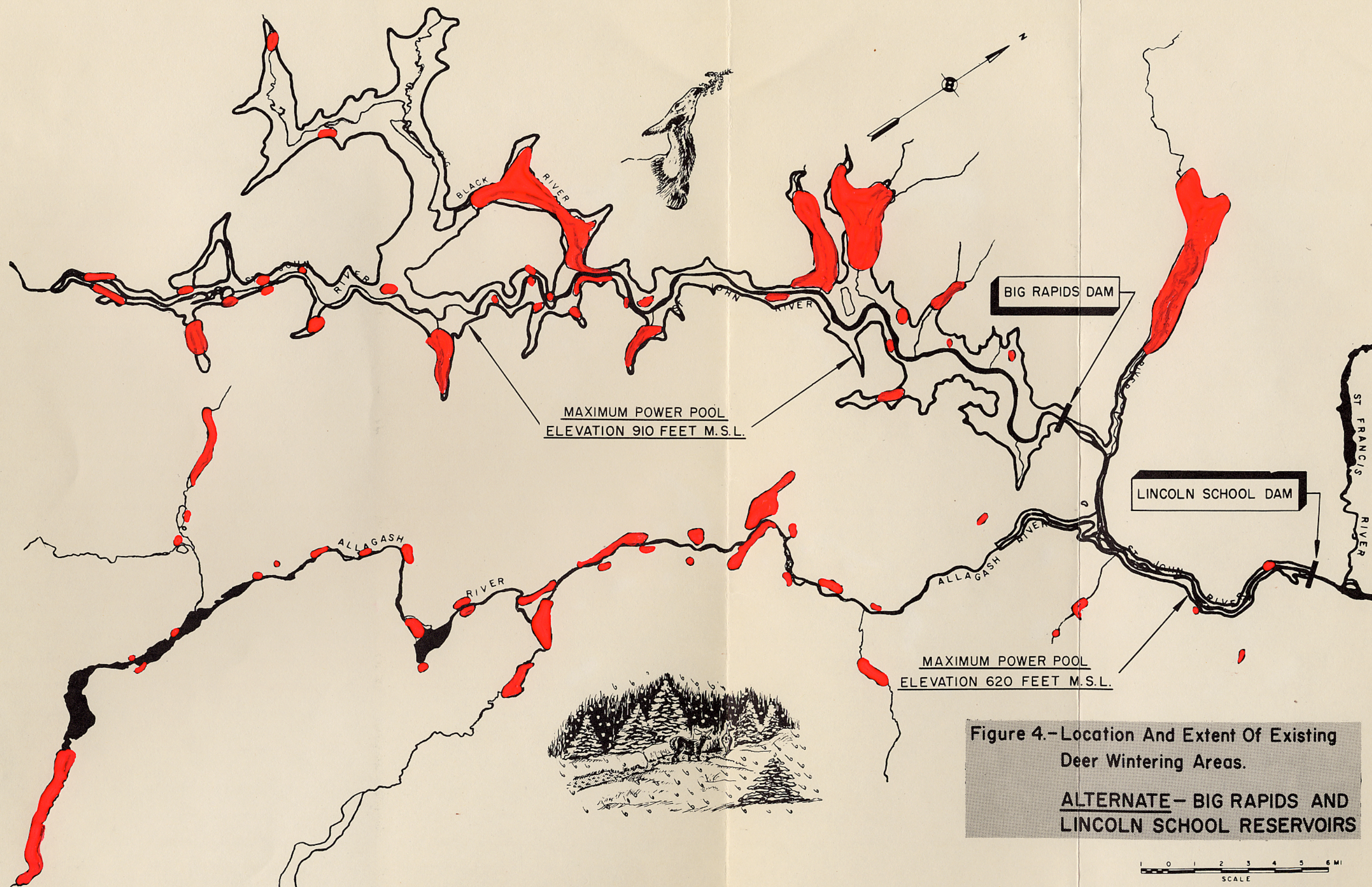
5/ Clawson, Marion; 1958, Statistics on Outdoor Recreation; Resources for the Future, Inc., p. 99, 101.

values could be considerably increased. However, its aesthetic contribution is of much greater importance. The Allagash and its surroundings have both local and national significance as the only area of this type in the country which is within reasonable reach of the eastern seaboard populations.

75. Although the pool of the Rankin Rapids Reservoir will provide certain features which will partially compensate losses, the tremendous loss of fish and wildlife habitat can never be replaced. The long narrow arms of the reservoir in the wilderness setting will be attractive to boat users. A great deal of the future use of this reservoir will be by boating enthusiasts whose pleasure is derived by just being on the water and by those seeking tributaries to fish or wilderness areas to hunt. Creation of the pool will make thousands of acres of wilderness area easily accessible by water. Heavy use of the reservoir, however, will not occur until construction of highways makes the area more accessible and the numerous lakes to the south become overcrowded. With coordinated development of recreational features, the Rankin Rapids reservoir pool could provide additional recreational facilities for the eastern seaboard populations, but these same features could be provided by selection of alternate sites.

76. In view of the fact that the Allagash River is an irreplaceable recreational resource of outstanding value, and in view of the fact that alternate sites are available, in the best interests of the public the Rankin Rapids Project should not be constructed.







The alternate Big Rapids-Lincoln School sites were first proposed in the New England-New York Inter-Agency Committee (NENYIAC) report in order to preserve the Allagash River. Certain other means, such as pumped storage pools or steam plants, have also been proposed to provide auxiliary power for the Passamaquoddy projects. Selection of the Big Rapids-Lincoln School sites would:

(1) Permit development of the major part of the Allagash River for wilderness-type recreational use. Under the alternate plan only about 6 miles of the lower part of the river would be affected.

(2) Maintain Allagash Falls as a natural barrier to the introduction of yellow perch into the Allagash River drainage, thereby preventing deterioration of the trout fishery of the entire drainage.

(3) Maintain 38 miles of a high-quality main-stem fishery on the Allagash River and inundate no significant lakes or ponds, although compared with Rankin Rapids Dam it would destroy an additional 10 miles of the St. John stream fishery, which is less valuable than the Allagash.

(4) Prevent loss of 30 deer yards comprising about 9,000 acres. Construction of the Rankin Rapids Project would cause the loss of 64 deer yards encompassing about 22,000 acres while construction of the alternate sites would cause the loss of 34 yards comprising about 13,000 acres.

(5) Cause serious fish and wildlife losses in addition to those mentioned in item 4 but the total losses to fish and wildlife resources would be less than would occur from the Rankin Rapids project.

(6) Provide adequate auxiliary power (according to verbal information received from the Corps of Engineers, May 15, 1958) to support the Passamaquoddy Tidal Power Project.

77. As the Allagash River offers unique recreational values, some form of program should be carried out to reserve the area for future generations. Programs to accomplish this have been previously recommended in the New England-New York Inter-Agency Committee (NENYIAC) Report, 1956, and in "A Recreation Plan for Maine", prepared by the Maine State Park Commission in cooperation with the National Park Service, also published in 1956. The program could be accomplished by establishment of a National or State Park, National Recreation Area, National or State Wilderness Area, rural zoning programs, or by some other means. A copy of a May 13, 1959 letter from the National Park Service, included in the Appendix, enlarges upon this approach. Without public development, the increasing demands for recreational areas and the increasing accessibility of this area will result in unremitting and increasingly lucrative offers to the landowners to sell or lease lands to private developers.

## APPENDIX

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Region Five  
421 Walnut Street  
Philadelphia 6, Pa.  
May 13, 1959

158 - ALLAGASH

Mr. John Gottschalk  
Regional Director, Region 5  
Bureau of Sport Fisheries and Wildlife  
U. S. Fish and Wildlife Service  
1105 Blake Building  
59 Temple Place, Boston 11, Massachusetts

Dear Mr. Gottschalk:

We are including herein a statement prepared in brief on Preservation of the Allagash Wilderness, upon the request of your office at the April 7 meeting of the Northeast Field Committee. Since we plan to make further field studies in the area in June, the statement should be considered as preliminary only. Specific recommendations will follow after our field studies are completed this summer.

The National Park Service believes that the Allagash River and its Watershed is an outstanding wilderness area of the eastern United States and should be preserved unimpaired for wilderness recreation and enjoyment, and scientific study. There is of course, no doubt that an area of this extent and caliber could become immensely popular for wilderness-type recreation activities and could attract many thousands of visitors annually, from all parts of the country. The following resolution was passed by the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings and Monuments at its 38th meeting in Washington, D. C. -

"The Advisory Board on National Parks, Historic Sites, Buildings and Monuments, recognizing that the Allagash River, Maine, has long been noted among outdoor enthusiasts across the Nation as an outstanding wilderness canoe route, and having carefully considered the significant scenic and natural values of the Allagash country, its vast north woods setting and unique complex of interconnected headwater lakes and streams, hereby voices concern for the future of the River and preservation of its exceptional qualities. The Board believes it to be in

the national interest that the wilderness characteristics of the Allagash be retained unimpaired for the use and enjoyment of future generations, and urges the Secretary of the Interior to explore all possible measures with interested persons, groups and public agencies to devise a suitable plan to achieve this objective".

To retain the wilderness characteristics unimpaired the following natural and historical resources should be preserved in the Allagash area -

- (1) The Allagash River in its present natural condition extending southward from T15 R11 approximately 55 miles.
- (2) Most of the watershed in its present wilderness condition as a complete ecological unit.
- (3) Some 65 headwaters and tributary lakes and ponds which total more than 50,000 acres of water surface within the watershed.
- (4) Approximately 300 miles of tributary streams within the watershed.
- (5) A representative portion of the northern spruce-fir forest and virgin white pine.
- (6) The excellent wildlife and fishery resources of the watershed and their respective habitats with consideration given to the possible restoration of the woodland caribou.
- (7) The varied plant life of the watershed and in particular its numerous marshes and bogs.
- (8) The archeological and historical sites in the watershed which highlight and depict Maine's early Indian culture and inhabitants back to prehistoric times, its exciting lumbering history in the North woods, and the brief history of the Aroostook War which brought about the final determination of the northeastern boundary of the United States.

Sincerely yours,

/s/ George A. Palmer  
Assistant Regional Director

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DEPARTMENT OF  
INLAND FISHERIES AND GAME  
Roland H. Cobb, Commissioner  
George W. Bucknam, Deputy Commissioner  
AUGUSTA

July 23, 1959

Mr. Ralph A. Schmidt, Regional Supervisor  
Branch of River Basin Studies  
Bureau of Sport Fisheries and Wildlife  
Fish and Wildlife Service  
Department of Interior  
59 Temple Place  
Boston, Massachusetts

Dear Mr. Schmidt:

The Rankin Rapids Reservoir report represents the general thinking of our Department. We appreciate your consideration of our suggestions and your effort to integrate the ideas of both our agencies.

One point I cannot emphasize enough is that the present report is based on only preliminary studies for the most part. If the fish and game interests are to make detailed recommendations, they must have the facilities and time to do a more thorough study of the drainage involved.

Sincerely yours,

/s/ ROLAND H. COBB  
Commissioner

RCH: jbl

WYNN DAVIS  
Wilmington, New York

July 3, 1959

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Mr. Robert L. Schueler  
Acting Regional Supervisor  
Branch of River Basin Studies  
59 Temple Place  
Boston, Mass.

Dear Mr. Schueler:

Unfortunately I was away when your letter of June 18 reached my home in Wilmington, New York. As a matter of fact, I was in Maine for several weeks fishing and digging up story material. I fished Big Lake, Spednic Lake, Moosehead and the Rangeleys as well as some streams. Also checked on the several salmon rivers.

Replying to your letter, I am one of the lucky ones who has made the Allagash trip starting just north of Moosehead so can give you a little first hand knowledge about this famous water.

In my opinion (and I have fished for trout over much of the United States and some of Canada for over 40 years) the Allagash is a trout angler's dream come true. Nowhere else in all this great country today can you find such wonderful squaretail fishing, such beautiful brook trout water or such a feeling of real adventure. The Allagash is the last of the great wilderness squaretail trips left to Americans.

As I remember it, the Allagash whispers adventure from the first of its more than 40 miles as it flows through unbroken wilderness all the way down to the St. John. No man can make the trip without being deeply stirred. There are wonderfully still pools filled with fabulous trout, brawling riffles and long quiet runs. We saw two moose on the trip, lots of deer.

I personally noted that the river is loaded with all sorts of food for trout growth. There is plenty of good cover, spring holes abound and there are a number of cold tributaries that seemed like excellent spawning and rearing areas. I'd say that the Allagash is irreplaceable. To kill it for any reason whatsoever, would be comparable, in my mind, to shooting the last passenger pigeon or the final wild turkey.

Sincerely yours,

/s/ Wynn Davis



NATIONAL WILDLIFE FEDERATION

22nd Annual Meeting, St. Louis, Missouri, Feb. 28-March 1 and 2, 1958

Resolution No. 2

OPPOSING THE RANKIN RAPIDS DAM ON THE ST. JOHN RIVER

WHEREAS, the proposed Rankin Rapids dam would flood out and destroy the existing brook trout fisheries on 45 miles of the St. John River and 35 miles on the renowned Allagash River;

WHEREAS, these rivers support one of the finest brook trout fisheries in the United States by reason of their excellent spawning areas, cold water tributaries, and other habitat features that are necessary to support a good trout fishery;

WHEREAS, The Allagash and St. John Rivers are noted nationwide for their excellent canoe trips through one of the largest Wilderness Areas left in the nation;

WHEREAS, a large part of the winter-yarding areas for deer in this area would be destroyed by the impoundment, thereby greatly reducing the carrying capacity in the adjacent areas, and

WHEREAS, there is reason to question that Northern Maine has need for the power that would be generated by this proposed dam, and present plans are for the power to go to Canada, this project would destroy an irreplaceable recreational area of great value for the benefit of power interests of another country; therefore

BE IT RESOLVED: The National Wildlife Federation supports the conservationists of Maine by assuming the leadership in opposing the proposed Rankin Rapids dam at least until an adequate multipurpose survey of the area's resource values and alternative plans can be completed and made public.

C

ST. CROIX VOYAGEURS

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May 25, 1959

United States  
Department of the Interior  
Fish and Wildlife Service  
Concord, New Hampshire

re: The proposed Rankin Rapids Dam on the St. John River  
and the effect it would have on my business, as well  
as many other Boys Camps who sponsor an Allagash Trip.

THE ST. CROIX VOYAGEURS was organized by the undersigned  
in 1934. We started with a small group of boys on the St.  
Croix and Machias Watersheds in Washington County, Maine.

The prime purpose of the trip is to teach teen age boys  
the ways of the woods, and wilderness travel comfortably  
and safely. The project has grown to a group of thirty  
campers plus counselors and guides, which number from  
eight to ten; and the trip includes seven weeks of deep  
woods camping. I would estimate that the campers and  
staff will spend between fifteen and twenty thousand  
dollars each year, in Maine.

In 1938 we changed our itinerary from the St. Croix and  
Machias country to the St. John and the Allagash watersheds.  
The obvious reason for this transfer to the Allagash-St. John  
country was because this seems to be the last remaining wilder-  
ness where we can really live up to our name.

The fish and wildlife in this section is much the same as  
it was fifty years ago, and the rivers are still challenging  
the "Voyageurs" skill, with "setting pole" and paddle, which  
is fast becoming a lost art, because of outboard motors  
and still waters.

IF THE RANKIN RAPIDS DAM becomes a reality, I am  
sure that I would either go out of business or take the Voyageurs  
to Canada.

And from the esthetic side, I think it would be one of  
man's greatest desecrations to strike out forever one of  
the most scenic and beautiful rivers in the world, viz:  
The Allagash.

/s/ Linwood L. Dwelley